<table>
<thead>
<tr>
<th>Location: Ballaghaderreen, Co. Roscommon</th>
<th>Unique ID: 260450 (from PFRA database)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial OPW Designation</td>
<td>APSR ✗ AFRR ☐ IRR ☐</td>
</tr>
<tr>
<td>Co-ordinates</td>
<td>Easting: 161500 Northing: 294249</td>
</tr>
<tr>
<td>River / Catchment / Sub-catchment</td>
<td>Lung and tributaries / Lung / Shannon</td>
</tr>
<tr>
<td>Type of Flooding / Flood Risk</td>
<td>Fluvial non-tidal ✗ Fluvial tidal ☐ Coastal ☐</td>
</tr>
</tbody>
</table>

**Stage 1: Desktop Review**

**1.1 Flood History (include review of Floodmaps.ie)**

**River Flow Path**
Tributaries to the Lung River flow south and south east through the town of Ballaghaderreen. The Lung River is located to the east and south of the town. The Lung generally flows east into Lough Gara.

The tributaries are crossed at several locations within the town boundary. The most noteworthy of these occur along Pound Street, Park View and the drainage ditch running parallel with Barrack Street.

**Flood Event Records**
Two flood records are listed in floodmaps.ie. Minutes of a meeting with the Ballaghaderreen Area Engineer (December 2004) are available which identifies 20 areas prone to flooding throughout Ballaghaderreen. These areas are generally roads and fields.

With indications that at least some if not all of the flooding identified by the Area Engineer is a result of severe rainfall overwhelming the storm water network. According to the report a sewage scheme has alleviated most, if not all, of this flood risk.

**1.2 Relevant information on flooding issues from OPW and LA staff**

**PFRA database comments (in italics):**

**OPW comments**
Combine with Ballaghaderreen. (260450) Need to identify this as part of other APSR. List in Shannon CFRAM Docs specifically as being part of other APSR. Designated APSR on the basis of predictive analysis. (Two scores combined 280 + 150 = 430.) ??? - Marginal predictive - No History - No LA support (works to south may have addressed issue) - Split areas with combined score appx. 430

**LA comments**
South of town, works may have addressed the issue, that the model may not have taken into account. Generally would feel that risk is lower. Landfill site Northern side drainage may be suspect River Lung drainage system has also improved situation. New STW has also improved situation. Landfill to be capped in 2011.

**Meeting / discussion summary comments:**

**OPW comments**
- The tributaries to the Lung River have flooded in the past.
- Works have been completed via arterial drainage scheme, the roads used to flood.
- Flood risk in the town itself is generally low.
• The flood risk is associated with the roads into and around the town. These are of critical importance, particularly the main road to Dublin, the N5.

LA comments
• Ballaghaderreen did not flood in 2009 – historic flooding of the sewage treatment works is now not an issue.
• The OPW carried out a scheme in Ballaghaderreen / on the Lung River in the 1980s and 1990s. This included lowering of the River and increasing flow capacity through bridges.
• Landfill site to the south may be at risk of flooding.
• No significant flood history on the tributaries.
• Maintenance regime needed to be updated by the OPW as there is some silt gathering in the Lung River.

1.4 PFRA Data

1.4.1 PFRA hazard mapping

| PFRA mapping available in GIS layer: | Yes ☒ No ☐ |
| PFRA mapping included on FRR map: | Yes ☒ No ☐ |

1.4.2 Summary of Principal Receptors

<table>
<thead>
<tr>
<th>Type</th>
<th>FRI score (if available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No principal receptors within the area for flood risk review. The FRI score is from residential and commercial properties.</td>
<td>430</td>
</tr>
</tbody>
</table>

Total 430

1.7 Stage 1 Evaluation

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Clearly APSR</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood History (1.1)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>OPW / LA Information (1.2)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PFRA Evaluation (1.4)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Overall Desktop Evaluation (if any above aspect is uncertain then overall designation is uncertain)</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

1.8 Proposed level of assessment for Stage 2 site visits

| Level A Site Visit | X |
| Level B Site Visit | |
## Stage 2: Site Inspection

### Level A Assessment

<table>
<thead>
<tr>
<th>Date and Time of Inspection</th>
<th>Date: 12/05/11</th>
<th>Time: 15:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names of inspection team</td>
<td>Peter Smyth</td>
<td>James Murray</td>
</tr>
<tr>
<td>(including OPW/LA staff if present)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2.1 Ground-truthing of Hazard Mapping

Fluvial non-tidal ☑  Fluvial tidal ☐  Coastal ☐  Not available ☐

PFRA hazard mapping generally good, however flooding on the tributaries may be overestimated.

### 2.2 Spot check ground-truthing of selected receptor vulnerability

(also note any key receptors noted during visit that are not identified by PFRA)

<table>
<thead>
<tr>
<th>Receptor Type</th>
<th>Location description (if not obvious)</th>
<th>Exists?</th>
<th>Overall Vulnerability / Risk (L / M / H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Dwellings - Properties at four locations were identified at being at risk in Ballaghaderreen</td>
<td>Location 1 and 2 - adjacent to culverts over two separate tributaries on Pound Street. Location 3 – adjacent to culvert on Convent Road Location 4 – at the end of a housing estate off Pound Street which seems to have been constructed in the Lung River Floodplain</td>
<td>Yes</td>
<td>Low</td>
</tr>
</tbody>
</table>

### 2.3 Local knowledge - on-site comments

(OPW, LA and any info volunteered by local residents during visit)

No on-site comments.

### 2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes

There are four tributaries to the Lung River in Ballaghaderreen. All of these tributaries have culverts which are likely cause hydraulic constrictions.
### 2.5 SVRS Assessment Matrix

Weightings:
- A - x1 - reasonable expectation of flooding
- B - x2 - high expectation of flooding
- C - x5 - risk to life

<table>
<thead>
<tr>
<th>Approx. Number</th>
<th>1 to 4</th>
<th>5 to 20</th>
<th>&gt;20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighting A B C</td>
<td>A B C</td>
<td>A B C</td>
<td>A B C</td>
</tr>
<tr>
<td>Property (domestic)</td>
<td>10</td>
<td>100 X</td>
<td>200</td>
</tr>
<tr>
<td>Property (small retail or business)</td>
<td>20</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Property (large retail or business)</td>
<td>50</td>
<td>500</td>
<td>1000</td>
</tr>
<tr>
<td>Road or Rail Infrastructure</td>
<td>30</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>Critical Infrastructure (local) [hospital, school, police/fire/ambulance station, substation, WTW/WWTW, gov bldg, other (specify)]</td>
<td>50</td>
<td>500</td>
<td>1000</td>
</tr>
<tr>
<td>Critical Infrastructure (national importance)</td>
<td>250</td>
<td>1000</td>
<td>2000</td>
</tr>
<tr>
<td>Cultural Heritage Site</td>
<td>20</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Environmental Designated Site</td>
<td>20</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Hazardous Substances Site</td>
<td>50</td>
<td>500</td>
<td>1000</td>
</tr>
</tbody>
</table>

Total SVRS 100

### 2.6 Defence Assets

**Open Channel Watercourses**
- Man-made river channel
- Flood relief channel
- Canal
- Mill leat
- Drainage channels / back drains

**Bridges and Culvert crossings**
- Single Arch bridge
- Multi-Arch bridge
- Single Span bridge
- Multi-Span bridge
- Box culvert(s)
- Pipe culvert(s)
- Arch Culvert(s)

**Culverted Watercourses** (culvert length is greater than just a crossing)
- Box culvert(s)
- Pipe culvert(s)
- Arch Culvert(s)
- Irregular Culvert(s)

**Walls and Embankments**
- Embankment(s)
- Raised wall(s)
- Retaining wall(s)

**Control Structures – weirs, gates, dams**
- Fixed crest weir
- Adjustable weir
- Dam / Barrage
- Sluice gates
- Lock gates
- Radial gates

**Storage**
- On-line storage (natural)
- On-line storage (artificial)
- Off-line storage

**Outfalls**
- Flapped outfall(s) into watercourse
- Unflapped outfall(s) into watercourse
  - i.e. from smaller watercourses, drains etc. into river / estuary / sea
- Tidal flap(s)
- Tidal sluice(s)
2.8 Initial Potential Mitigation Measures

### Non-structural measures
- Planning and Development control
- Sustainable Urban Drainage Systems
- Flood forecasting / warning
- Change in Operating Procedures for water level control
- Public awareness campaign
- Individual property protection
- Land use management

### Structural measures
- Strategic development management for floodplain development: (integration of measures into strategic development proposals)
- Storage: On-line [X] Off-line
- Flow diversion: Flood relief channel [X] Flood relief culvert
- Increase conveyance: Bridge works [X] Channel works [X] Floodplain
- Flood defences: Walls [X] Embankments
- Localised works: Defence raising In-fill gaps [X] Trash screen
- Maintenance works: Culvert / channel clearance Asset maintenance
- Relocation of properties: [X]
- Improve existing defences: (describe)

### Additional notes (if required):

#### Outcomes
<table>
<thead>
<tr>
<th>PFRA Designation</th>
<th>APSR [X] not an APSR [X] IRR [X]</th>
<th>FRI Score: 430</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)</td>
<td>High Confidence (good) Uncertain Low Confidence (poor) Not available</td>
<td>X</td>
</tr>
<tr>
<td>Site Visit Review Score</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Recommended Designation</td>
<td>APSR [X] not an APSR [X] IRR [X]</td>
<td></td>
</tr>
<tr>
<td>Summary Comments (if required)</td>
<td>There are a number of watercourses flowing through Ballaghaderreen, each with different hydrological conditions. There are several properties potentially at risk of flooding along most of these watercourses, but they are all hydrologically independent. Generally, there are an insufficient number of critical receptors of significant risk of flooding within Ballaghaderreen to warrant its designation as an APSR.</td>
<td></td>
</tr>
</tbody>
</table>
Photo 1: Tributary to the River Lung in Ballaghaderreen.

Photo 2: Culvert on Tributary to the River Lung in Ballaghaderreen.

Photo 3: Tributary to the River Lung in Ballaghaderreen.

Photo 4: Tributary to the River Lung in Ballaghaderreen.
Photo 5: Tributary to the River Lung in Ballaghaderreen.

Photo 6: Culvert on Tributary to the River Lung in Ballaghaderreen.

Photo 7: Tributary to the River Lung in Ballaghaderreen.

Photo 8: River Lung South of Ballaghaderreen.
The PFRA Flood Extents shown are indicative. They have been developed using simple and cost-effective methods that are suitable for the PFRA. They should not be used for local decision-making or any other purpose without verification.